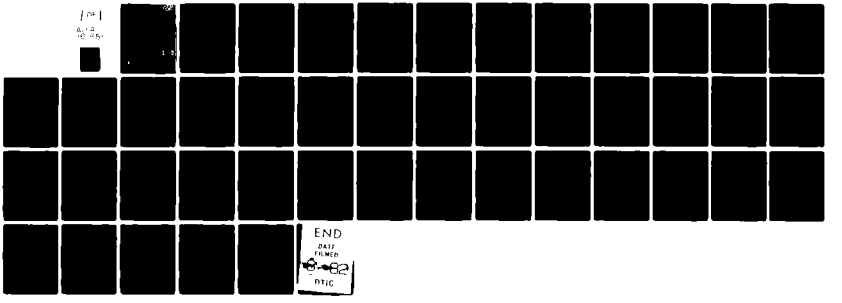
AD-A116 851 OHIO STATE UNIV COLUMBUS DEPT OF PSYCHOLOGY F/G 5/10
SELECTIVE RETRIEVAL OF STIMULUS INFORMATION VERSUS THEMATIC JUD--ETC(U)
MAY 82 M R LEIPPE, M H BAUMGARDNER N00014-79-C-0027
UNCLASSIFIED SOCIAL PSYCHOLOGY BULL-82 NL



SELECTIVE RETRIEVAL OF STIMULUS INFORMATION VS. THEMATIC JUDGMENTS IN NATURAL LANGUAGE INFERENCES

Michael R. Leippe
St. Norbert College

Thomas M. Ostrom
Ohio State University

Michael H. Baumgardner
Burke Marketing Services, Inc. and

John H. Lingle
Rutgers--The State University

Technical Report Number TR/ONR-7

May, 1982

Social Psychology Bulletin 82-3

Reproduction in whole or in part is permitted for any purpose of the United States Government. This report was supported by contracts on the Organizational Effectiveness Research Program, Office of Naval Research United States Navy (Code 452) under control No. N00014-81-K-0112, NR 170-927.

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER TR/ONR-7	2. GOVT ACCESSION NO. AD-A116851	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Selective Retrieval of Stimulus Information vs. Thematic Judgments in Natural Language Inferences		5. TYPE OF REPORT & PERIOD COVERED Technical Report 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Michael R. Leippe, Thomas M. Ostrom, Michael H. Baumgardner and John H. Lingle		8. CONTRACT OR GRANT NUMBER(s) N00014-79-C-0027 and N00014-81-K-112
9. PERFORMING ORGANIZATION NAME AND ADDRESS Department of Psychology Ohio State University Columbus, Ohio 43210		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS NR 170-882 and NR 170-927
11. CONTROLLING OFFICE NAME AND ADDRESS Organizational Effectiveness Research Programs Office of Naval Research (Code 452) Arlington, VA 22217		12. REPORT DATE May 12, 1982 13. NUMBER OF PAGES 28
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Person percpetion, information retrieval, memory-based judgments, and personnel decisions

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

When people make impression judgments about another, the judgment itself can provide an organizing theme for representing the person in memory. Such cognitive representations are likely to include memory for the initial judgment together with at least partial memory for previously obtained stimulus information about the person. Both types of cognitions can then become available as the basis for later memory-based inferences. Previous research has shown that subsequent impression ratings of a stimulus person (on personality dimensions relevant and irrelevant to the initial thematic judgment) are affected by (over)

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE
S/N 0102-LF-014-6601

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

memory for an intial judgment. There is less evidence that such ratings are affected by memory for initial stimulus information. This weak contribution of stimulus information to memory-based impression responses may be due to the expressive constraints inherent in experimenter provided rating scales. The present study examined the relative effects of stimulus information and thematic judgments on unconstrained natural language inferences, rather than on unidimensional trait ratings. This was done by first having subjects judge the suitability of stimulus persons for occupations that varied in their relevance to friendliness and intelligence, and then write an open ended paragraph describing their impressions of the persons. A second group of subjects then rated these paragraphs for their implications regarding friendliness and intelligence. The results showed that subjects' natural language inferences drew on both memory for their initial judgment as well as thematically selected stimulus information.

Selective Retrieval of Stimulus Information vs. Thematic Judgments in Natural Language Inferences

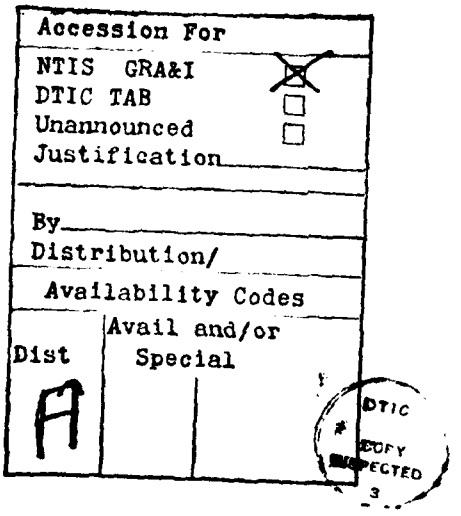
Michael R. Leippe
St. Norbert College

Thomas M. Ostrom
Ohio State University

Michael H. Baumgardner
Burke Marketing Services, Inc.

and

John H. Lingle
Rutgers--The State University



This research was supported by a grant from the Organizational Effectiveness Research Program, Office of Naval Research United States Navy (Code 452) under control No. N00014-81-K-0112, NR 170-927. Reprint requests can be sent to T. M. Ostrom (Department of Psychology, Ohio State University, Columbus, Ohio 43210).

Running Head: Information and Judgment Retrieval

Selective Retrieval of Stimulus Information vs Thematic Judgments in Natural Language Inferences

On almost a daily basis, people report their impressions of others whom they have encountered in the past. A friend may ask our opinion about someone, we may spontaneously offer our impression of an acquaintance in the course of conversation, or we may simply think about a person in anticipation of some future interaction. Such memory-based reports of impressions typically have two important features. First, they are often prompted by an overall, non-specific question regarding the person (e.g., "What do you think of Joe?" as opposed to the more directive "Is Joe intelligent?"). Second, the report is usually expressed in natural language (e.g., "Joe is a bright guy, but kind of shy") rather than as a structured set of judgments on specified trait dimensions as is often required in impression formation research.

If inferences about others are typically expressed through natural language in response to unstructured questions, our understanding of the social judgment process needsto be extended to these "every day" kinds of impression responses. Indeed, social psychologists are becoming increasingly aware of the importance of such diverse "cognitive responses" to social stimuli. Petty, Ostrom, and Brock (1981), for example, offer an extensive discussion of the importance of assessing personal cognitive responses in order to fully understand attitude change processes. It is becoming an increasingly common practice in persuasion research to have subjects list their thoughts about persuasive messages. These qualitatively diverse responses that reflect the recipients' own ideas and beliefs about a message tend to be more highly correlated with attitude change than recall of the message information itself (e.g., Greenwald, 1968). They can also be indicative of the "cognitive work" (Weiss, 1968) involved in the attitude change process along with how subjects integrate stimulus information and store it in

memory.

In the study of person impressions (which also involves attitudinal responses to external stimuli),natural language responses can be similarly useful. First, as noted, such measures are ecologically realistic. Second, at a theoretical level, they offer a means of determining how people spontaneously think about a stimulus person. This is in contrast to the more common usage of forced attribute judgments along numerical scales that impose on subjects judgment dimensions selected because of their interest to the researcher (rather than their relevence to the subject). Third, natural language responses reflect the way in which person information is organized in memory and integrated with other relevant social knowledge. Finally, the use of natural language to convey inferences about a stimulus person, as opposed to structured attribute judgments or rating scales, may itself cause person information to be retrieved differently from memory. The present paper focuses on this last consideration.

Memory-Based Inferences

Most of the people we interact with, think about, and discuss are people we have known over a period of time. The inferences we make about them draw upon memory of previous encounters as well as earlier thoughts we may have had about them. The question of how subjects draw upon such memories in making inferences has been examined by a number of investigators (cf. Carlston, 1980; Higgins, Rholes, & Jones, 1977; Ostrom, Lingle, Pryor, & Geva, 1980). Of central concern has been the issue of whether, when making such judgments, people access their memory for previously acquired factual information vs. memory for inferences and judgments they may previously have made about the person.

The bulk of this research has found that people depended heavily on memory for previous judgments when making memory-based inferences about others. Much

less evidence exists linking subjects' inferences to a factual information memory base (although Lingle & Ostrom, 1979; Lingle, Dukerich, & Ostrom, in press , and Lingle, Note 1 provide some such evidence). However, this previous research has employed a format in which subjects are required to make structured inferences rather than generating free-form descriptions. In contrast, the present study investigated memory retrieval processes underlying relatively unstructured, natural language inferences. There are, in fact, reasons to believe that the retrieval of factual information should play a larger role in natural language inferences than in structured inferences.

Memory retrieval in structured attribute inferences. The present study adopted the person impression task used by Lingle et al. (1979) in their third experiment. The results of this experiment indicated subjects did not retrieve stimulus information when making structured inferences. The impression task involved giving subjects a set of descriptive traits about a person and having them make an occupational suitability rating based on the description. The stimulus persons were described with either positive, neutral, or negative traits. Following the occupational suitability rating, subjects are asked to provide memory-based impression responses.

In this type of task, the traits represent a factual information set subjects can access to make subsequent inferences while the occupational suitability rating represents a thematic judgment that may also be used as the basis for later inferences. Lingle et al. (1979) used structured rating scales to measure subjects subsequent trait inferences whereas the present study used their impression induction task (i.e., traits plus thematic judgment) to examine inferences generated in natural language descriptions.

Within their paradigm, Lingle et al. (1979) indentified two ways in which an initial thematic organization might affect subsequent inferences through memory retrieval processes. One possibility is that, following an occupational judgment, a perceiver spontaneously recalls more theme- (occupation-) relevant traits (e.g., intelligence for the occupation of physicist) than theme-irrelevant traits (e.g., friendliness for the occupation of physicist). If so, a perceiver should subsequently make more extreme inferences about a stimulus person in the evaluative direction of the initial occupational judgment on occupation-relevant, as compared to occupation-irrelevant, attribute dimensions. That is, if a negatively described stimulus person were judged unsuitable as a physicist, the perceiver might selectively encode attributes indicating that the person was not intelligent enough to do the job. Later, if the subject scanned memory for the information, the increased accessibility of unintelligent attributes would bias his or her judgement in an unintelligent direction. This type of memory selectivity for stimulus information, however, would not be expected to affect judgment-irrelevant information (such as traits related to friendliness). Therefore, judgments along such non-relevant dimensions would not be biased. Extensive empirical support for this form of selective encoding for descriptive information is provided by Lingle et al. (1979) and Ostrom et al. (1980).

If selective retrieval for relevant stimulus information were to occur, information-based inferences should have different effects depending on whether a stimulus person has been described by primarily positive or negative characteristics. A positive person should be viewed as having more positive judgment-relevant features than judgment-irrelevant features; a negative stimulus person as having more negative judgment-relevant features than judgment-irrelevant features. In this way memory selectivity would have the effect of polarizing future

judgments along relevant dimensions. Such an information retrieval process would produce the description valence by relevance interaction depicted in panel a of Figure 1.

Insert Figure 1 about here

Alternatively, Lingle et al. (1979) noted that people may base their later inferences on the organizational theme provided by the initial judgment. That is, they may retrieve the judgment theme independently of stored information items. If this occurs, subjects' memory-based trait inferences should reflect the degree to which the inference attribute is stereotypical of the theme. That is, a person should be seen as having more of a theme-relevant trait than of a theme-irrelevant trait. As an example, relative to someone first judged to be a good waiter, someone judged to be a good physicist should later be seen as more intelligent since physicists are stereotypically more intelligent than waiters. Furthermore (and in contrast to the information retrieval prediction), even person judged to be a bad physicist should subsequently be ascribed more intelligence than if he were judged a bad waiter, since a bad physicist is still likely to be thought of as more intelligent than a bad waiter. This judgment retrieval process leads to the predictions of a relevance main effect as depicted in panel b of Figure 1.

It should be stressed that this judgment retrieval process is different from a simple "halo effect". Halo effects refer to undifferentiated affective generalization from an overall impression. In the Lingle et al. (1979) study, differential inferences were made depending on the relevance of the inference attribute to the initial thematic judgment.

The information and judgment retrieval models are not mutually exclusive. People are flexible information processors and are capable of employing a variety of cognitive strategies in the service of making inferences. It is quite conceivable that the mediating cognitive activity could entail the retrieval of both factual information and prior judgments. Such a mixed model would predict a blending of the other two processes. This prediction (depicted in figure 1c) would simultaneously involve the interaction resulting from information retrieval model (see Figure 1a) and the relevance effect resulting from the judgment retrieval model (see Figure 1b).

Finally, it should be noted that the paradigm allows for the possibility that neither information retrieval nor judgment retrieval processes are involved in the act of generating inferences. If, for example, attribute inferences were the simply result of an undifferentiated halo effect or of subjects retrieving the descriptive traits in an unbiased manner, neither the interaction nor the relevance main effect depicted in Figures 1a and 1b, respectively, should be significant.

In the actual study conducted by Lingle et al. (1979) subjects' closely matched the pattern depicted in panel 1b. That is, subjects attribute inferences exclusively reflected the judgment retrieval process. There was no evidence of a valence by relevance interaction that would reflect an information retrieval strategy.

Memory retrieval in natural language inferences. Like most impression formation researchers, Lingle et al. (1979) had subjects give ratings on a number of different attribute dimensions (e.g., friendliness and intellignece) using a "forced choice" set of response alternatives (i.e., seven graded categories ranging from "very low" to "very high"). In all, subjects were required to rate 12 stimulus persons on 10 different dimensions. Given this memory-based

impression task, it is not difficult to identify reasons why subjects, when responding, might have undertaken a cursory and somewhat unrepresentative memory search. First, the large number of ratings may have encouraged subjects to move rapidly through the list without giving lengthy consideration to any single judgment. Second, each attribute served as a forced retrieval cue that could have made salient in memory a limited set of cognitions that were most relevant to it. Since no rating scale anchor appeared as a stimulus item, such attempts at direct retrieval sould prove fruitless and be soon abandoned. Third, the isolated and singular nature of each judgment would not have encouraged subjects to justify a rating by relating other aspects of their impression to it. Fourth, after responding to the first several stimulus persons, subjects would realize they would not be explicitly required to recall the stimulus traits. This may have reduced the likelihood they would try to learn the traits for the subsequent stimulus person replications. In combination, the features of this (and most other) person perception studies provide the subject with little incentive to base impression responses on previously encountered stimulus information.

The task of generating natural language inferences is characterized by a different set of features that may well encourage different retrieval processes. First, in generating natural descriptions subjects are able to use their own set of categories. These should reflect the categories they used to encode factual information. It is reasonable to expect that the categories adopted at initial encoding would reflect the specific information items that described the person (supplementing the thematic category provided by the initial judgment). Furthermore, the self-generated retrieval cues subjects employ are themselves likely to be distinct from cues provided by structured trait ratings. The use of self-

generated cues and encoding categories may well make subjects' inferences more representative of their full impressions, and as a consequence the inferences may reflect more closely the information upon which the impression was based.

With natural language descriptions subjects are free to generate a coherent train of inferences (as opposed to a disjointed series of attribute ratings). This too may increase the likelihood that the inferences will reflect information retrieval. As noted by Asch (1946), when freely describing others, people tend to produce inter-relational and causal chains among attributes. To the degree these chains have a tendency to trace their lineage to a factual information base, subjects' natural descriptions should reflect an information retrieval strategy.

Finally, the less hurried nature of generating a freely-selected set of inferences about a person (as opposed to making multiple ratings) may tend to produce inferences that more closely reflect one's full impressions. If subjects' cognitive representations of stimulus persons include some factual information , that information should be included when a more complete sampling of the cognitive representation is encouraged.

In the following study, subjects were first presented with a stimulus person description and asked to make an occupational suitability judgment that was highly relevant to the attribute of either intelligence or friendliness (e.g., research physicist or waiter,respectively). Subsequently, subjects' impressions of the person were assessed. Rather than asking for structured attribute ratings, subjects were asked to describe the person by listing all of the characteristics that came to mind. To insure that responses would be restricted to inferences, explicit instructions were given not to include in the list any of the original descriptive stimulus traits. Otherwise, no restrictions were placed on what inferences could be listed or how they might be qualified or inter-related.

Subjects' free descriptions were then analyzed by having an independent group of subjects judge each paragraph on scales of intelligence and friendliness. The resulting scale values were analyzed to evaluate the models displayed in Figure 1 .

Method

Subjects

One hundred and eight introductory psychology students, recruited without regard to sex, participated as part of a course requirement. Of these, 48 made occupational judgments and generated memory-based natural descriptions of stimulus persons. The remaining 60 provided attribute scale values for the person descriptions.

Stimulus Materials

The stimulus materials were the same as those used by Lingle et al.(1979), who provided a complete description of their generation. In this earlier research subjects initially made occupational-suitability judgments of 12 different stimulus persons. Two classes of 6 occupations were used. For one class, friendliness (but not intelligence) was the more important relevant attribute for success (i.e., cab driver, airline steward, waiter, baggage porter, telephone solicitor and shoe salesman); for the other class, intelligence (but not friendliness) was the more relevant attribute (i.e., geologist, research physicist, organic chemist, statistician, medical researcher and aeronautical technician). These occupations were selected by having pilot subjects rate 30 intelligence-relevant and 29 friendliness-relevant occupations according to how important they knowing about intelligence or friendliness would be for judging a person's aptitiude for the occupation. The 6 intelligence and 6 friendliness-relevant occupations used were those for which the largest mean differences between friendliness and intelligence were obtained.

In Lingle et al.'s (1979) research, as well as here, three types of stimulus persons were presented (each subject judged four persons of each type): Using Edwards (Note 2) rescaling of Anderson's (1968) trait list, negative stimulus

persons were described by 4 traits falling in the 250-349 (moderately negative) range, neutral persons were described by 4 traits falling in the 350-449 (neutral) range, and positive persons by 4 traints in the 450-549 (moderately positive) range. The descriptions were constructed so as (a) to consist of traits that were randomly selected from within each range with the constraint that they not have strong implications about either friendliness (e.g., warm) or intelligence (e.g., stupid), and (b) to be of approximately equal relevance to the two groups of occupations.

Experimental procedure and design

Collection of natural language descriptions. Subjects in the description-generation phase of the experiment participated in groups of 10 to 20 with stimulus materials being presented in booklet format. The first two booklet pages explained that the experiment was concerned with how people form person impressions based on a limited number of descriptive traits. The experimental task consisted of making stimulus-based occupational judgments followed by writing memory-based impression descriptions. This was done for each of 12 different stimulus persons. For each stimulus person, subjects were given a list of four traits describing the person and were asked (on the same page) to rate the person on a 7-point scale according to how well they thought the person would perform in a designated occupation. They were specifically told not to consider the stimulus persons as applicants or current workers in the occupations being considered. The natural language description task was presented on the following page. Subjects were asked to write down (without looking back at the stimulus traits) all other characteristics they thought might describe the stimulus person.

A different occupational suitability judgment was made for each of the 12 stimulus persons, involving 6 friendliness- and 6 intelligence-relevant occupations. The 6 occupations in each class were paired with two negatively, two neutral, and two positively described persons. Counterbalancing of the stimulus persons and occupations was achieved by a latin square design necessitating a total of 12 subjects in order for each combination of occupation and stimulus person to appear once. Four replications were undertaken by going through the latin square four times, bringing the total sample size to 48. The order in which each subject saw the stimulus person/occupation combinations was randomized.

Ratings of the generated descriptions. It was necessary to assign scores to the generated descriptions in order to analyze where they fell on the friendliness and intelligence dimensions. To do this, the 576 (12 x 48) description sets generated by the subjects in the preceding phase of the research were assembled into four booklets of 144 descriptions. Each booklet was then given to a different group of 15 subject-judges who rated each description set sequentially on two seven-point scales -- one for friendliness and one for intelligence

The judges' mean friendliness and intelligence ratings of these 576 descriptions were analyzed in a 3 x 2 x 2 within-subjects analysis of variance, the three factors in the design being (a) stimulus person valence (four positive, neutral or negative traits), (b) attribute relevance (whether the attribute rated was relevant or irrelevant to the occupational judgment that had preceded the generation of the description), and (c) attribute rating scale replications (friendliness or intelligence). It should be emphasized that in

this design any differences in the generated description rating can only be accounted for by differences in relevance of a rated attribute (friendliness or intelligence) to the preceding judgment since (a) when collapsed across occupation class replications, intelligence and friendliness serve equally often as relevant and irrelevant dimensions and (b) scaling of the relevant and irrelevant attributes was based in each instance on a single generated description.

Results

Occupational ratings

As a manipulation check of the intended valence of the stimulus person descriptions, subjects' occupational suitability ratings were examined. As expected, the stimulus person descriptions produced reliable differences in these ratings. Positive stimulus persons were rated most suitable for the occupation being judged, the neutral stimulus persons were rated less suitable and the negative stimulus persons were rated least suitable. The means were 5.92 vs. 3.82 vs. 1.94, respectively, F (2,94) = 304.64, p <.001. No other effects were found to be significant.

Attribute ratings of natural language descriptions

The mean scale values of subjects' judged written descriptions, when averaged over the two attribute scale replications, are displayed in Figure 2. As can be seen

---

Insert Figure 2 about here

---

from the pattern of results, there was a strong effect for stimulus person valence (F (2,94) = 173.51, p < .001) with positive traits eliciting the most favorable subsequent person descriptions and negative traits eliciting the least favorable descriptions. This effect is expected by both the information retrieval

and judgment retrieval models.

Comparing the pattern of results in Figure 2 with the alternative models displayed in Figure 1 shows clear support for the mixed model. The contribution of judgment theme retrieval processes is reflected in the finding that overall, generated descriptions were rated higher for relevant attributes than for irrelevant attributes (F (1,47) = 8.56, p < .006). The simultaneous contribution of information retrieval processes is shown by a significant interaction between attribute relevance and stimulus person valence (F (2 94) = 10.73, p < .001).

Attribute scale replications. To establish generality of retrieval processes in natural language inferences, two different attribute dimensions (friendliness and intelligence) were employed in the present study. While the preceding overall analyses established that stimulus retrieval processes do play an important role in natural language inferences, it is possible that the pattern of selectivity is different for one attribute than for the other.

The data in Table 1 show that information retrieval contributed to both attribute replications. The linear component of the interaction between attribute relevence and stimulus person valence was significant for both the friendliness (F (1,47) = 5.17, p < .05) and the intelligence (F (1,47) = 4.64, p < .05) attribute scales.

It appears, however, that judgment retrieval processes were only involved for the intelligence attribute. A significant interaction was obtained between the relevance factor and attribute scale replication (F (1,47) = 4.45, p < .05). The significant relevance main effect was due entirely to the intelligence scale; means for the friendliness attribute were slightly in the opposite direction. No other effects in this analysis were significant.

The absence of evidence for judgment retrieval processes operating for the

friendliness attribute may be due to a comparitively weak manipulation of the initial judgment theme. There seems little doubt that most subjects would spontaneously assume that intelligence was necessary for success in even the weakest of the intelligence-relevant occupations (i.e., medical researcher and aeronautical technician). However, the attribute of friendliness may not be sponataneously evoked for such occupations as cab driver, waiter, or baggage porter, even though friendliness was judged more important than intelligence for success in those occupations. Support for this speculation is provided by Lingle et al. (1979). The same occupational judgments and stimulus traits were used in that study as in this study. They also found that the relevance effect on attribute ratings was significantly greater for the intelligence dimension than for the friendliness dimension.

Discussion

In his early work Asch (1946) was struck by the richness of the impressions people form based on the smallest of information sets. "A glance, a few spoken words are sufficient to tell us a story about a highly complex matter...such impressions form with remarkable rapidity and with great ease (p. 258)". In this way, our cognitive representations of others typically consist not only of memories for facts and events, but also of a rich assortment of judgments, categorizations, and relational concepts. This does not mean, of course, that an entire impression is accessed each time a decision or inference is made. Rather, we appear to sample subsets of our cognitive representations when making memory-based judgments (see Wyer & Hartwick, 1980). Understanding the dynamics of how this sampling occurs is theoretically and practically important because it determines the types of information likely to be communicated in conversation or brought to bear on a decision. It is necessary, then, not only to identify the important structural components of people's impressions, but also to identify the

personal and situational factors that determine how these representations are sampled during social behavior.

An important theoretical advance of the past decade has been the clear empirical demonstration that self-generated cognitive responses are salient components of people's attitudes and impressions (cf., Petty, Ostrom, & Brock, 1981). Unfortunately, one consequence has been an overemphasis of the role self-generated cognitions play as the source of people's memory-based inferences. Researchers in the areas of attitudes (e.g., Greenwald, 1968), impressions (e.g., Dreben, Fiske, & Hastie, 1979), attribute inferences (e.g., Lingle, et al., 1979) have all emphasized the retrieval of cognitive responses as being more important than the retrieval of stimulus information in determining social behavior. Such a conclusion seems certain to be over-simplistic, given people's flexible processing abilities. In fact, several recent investigations, like the present one, have begun focusing on variables that lead subjects to sample more extensively the informational components of their memory representations.

One factor that appears to increase information sampling during memory-based inferences is directed processing. That is, when subjects are directed to recall or review factual information prior to a decision, the decision is likely to reflect sampling from a factual information base (see Ford & Weldon, 1981; Reyes, Thompson, & Bower, 1980). Relevance or accountability has also been shown to impact on information sampling during inference generations. Both Ford and Welden (1981) and Lingle (Note 1) have found evidence that subjects review in memory factual stimulus information when they are asked to make judgments they may later have to justify. Similarly, Chaiken (1980) and Petty, Cacioppo, and Goldman (1981) have found greater processing of and reliance on message content as the basis for attitude judgments with other types of increases in issue relevancy. A third

class of factors that has also been found to influence memory search during inference generation is judgment-cueing effects. Here, Allen and Ebbesen (1981) found evidence that the specificity or concreteness of a structured trait inference affected whether subjects based the inference on memory for a global theme or a serial search of encoded factual information. Lingle, Dukerich, and Ostrom (in press) found that when subjects were able to functionally encode information as potentially incongruent with a future judgment they supplemented their theme-based judgments with a memory search for incongruent factual information. Thus, an interaction between how subjects encoded information and the decision they had to make determined they type of information search they engaged in when making decisions.

The present study extends this growing body of work by identifying yet another situation -- natural language descriptions -- in which people rely on informational memory searches as the basis for inferences. At the same time, the work also reconfirms the importance of an early thematic judgment in structuring how people organize and sample their cognitive representations of others. In this regard, the study makes a further contribution by illustrating the operation in concert of two separate mechanisms capable of mediating the influence of a thematic judgment: (a) sampling of theme-related attributes not directly implied by a descriptive information base (the relevance main effect) and (b) biased sampling of theme-relevant descriptive information (the relevance by valence interaction). In fact, an important advantage of the present methodology over that used in many previous studies is that it can independently isolate types of influence and separate them from generalized halo effects.

While the present results suggest that subjects use different memory sampling strategies for natural language as opposed to structured trait inferences, it leaves unanswered which particular mechanism(s) produce(s) greater information

sampling in the former, as compared to latter, case. Possible responsible factors include the fact that with natural descriptions (as compared to structured trait inferences) subjects (a) are free to use their own encoding categories, (b) use self-generated memory cues, (c) are free to consider inferences in a single, less-hurried fashion and (d) may trace the causal lineages of their generated descriptors.

Reference Notes

1. Lingle, J.H. Tracing memory structure activation in person memory. Manuscript submitted for publication, 1982.

2. Edwards, J.D. Revised likableness ratings of 554 personality-trait adjectives. Unpublished manuscript, Ohio State University, 1967.

References

Allen, R.B., & Ebbesen, E.B. Cognitive processes in person perception: Retrieval of personality trait and behavioral information. Journal of Experimental Social Psychology, 1981, 17, 119-141.

Anderson, N.H. Likableness ratings of 555 personality-trait words. Journal of Personality and Social Psychology, 1968, 9, 272-279.

Asch, S.E. Forming impressions of personality. Journal of Abnormal and Social Psychology, 1946, 41, 258-290.

Carlston, D.E. Events, inferences, and impression formation. In R. Hastie, T. Ostrom, E. Ebbesen, R. Wyer, D. Hamilton, & D. Carlston (Eds.), Person memory: The cognitive basis of social perception. Hillsdale, N.J.: Erlbaum Associates, 1980.

Chaiken, S. Heuristic versus systematic information processing and the use of source versus message cues in persuasion. Journal of Personality and Social Psychology, 1980, 39, 752-766.

Dreben, E.K., Fiske, S.T., & Hastie R. The independence of evaluative and item information: Impression and recall order effects in behavior-based impression formation. Journal of Personality and Social Psychology, 1979, 37, 1758-1768.

Ford, J.K., & Weldon, E. Forewarning and accountability: Effects on memory-based interpersonal judgments. Personality and Social Psychology Bulletin, 1981, 7, 264-268.

Greenwald, A.G. Cognitive learning, cognitive response to persuasion, and attitude change. In A.G. Greenwald, T.C. Brock, & T.M. Ostrom (Eds.), Psychological foundation of attitudes. New York: Academic Press, 1968.

Higgins, E.T., Rholes, W.S., & Jones, C.R. Category accessability and impression formation. Journal of Experimental Social Psychology, 1977,13, 141-154.

Lingle, J.H., Geva, N., Ostrom, T.M., Leippe, M.R., & Baumgardner, M.H. Thematic effects of person judgments on impression organization. Journal of Personality and Social Psychology, 1979, 37, 674-687.

Lingle, J.H., Dukerich, J.M., & Ostrom, T.M. Accessing information in memory-based impression judgments: Incongruity vs negativity in retrieval selectivity. Journal of Personality and Social Psychology, in press.

Lingle, J.H. & Ostrom, T.M. Retrieval selectivity in memory-based impression judgments. Journal of Personality and Social Psychology, 1979, 37, 180-194.

Ostrom, T.M., Lingle, J.H., Pryor, J.B., & Geva, N. Cognitive organization of person impressions. In R. Hastie, T. Ostrom, E. Ebbesen, R. Wyer, D. Hamilton, & D. Carlston (Eds.), Person memory: The cognitive basis of social perception. Hillsdale, N.J.: Erlbaum Associates, 1980.

Petty, R.E., Cacioppo, J.T., & Goldman, R. Personal involvement as a determinant of argument-based persuasion. Journal of Personality and Social Psychology, 1981, 41, 847-855.

Petty, R.E., Ostrom, T.M., & Brock, T.C. (Eds.) Cognitive responses in persuasion. Hillsdale, N.J.: Erlbaum Associates, 1980.

Reyes, R.M., Thompson, W.C., & Bower, G.H. Judgmental biases resulting from differing availabilities of arguments. Journal of Personality and Social Psychology, 1980, 39, 2-12.

Weiss, W. Modes of resolution and reasoning in attitude change experiments. In R. Abelson, E. Aronson, W. McGuire, T. Newcomb, M. Rosenberg, & P. Tannenbaum (Eds.), Theories of cognitive consistency: A sourcebook. Chicago: Rand McNally, 1968.

Wyer, R.S., & Hartwick, J. The role of information retrieval and conditional inference processes in belief formation and change. In L. Berkowitz (Ed.), Advances in experimental social psychology (Vol. 13). New York: Academic Press, 1980.

Footnote

The preparation of this paper was supported by a contract from the Organizational Effectiveness Research Program, Office of Naval Research, United States Navy (Code 452) under control No. N00014-81-K-0112, NR 170-927, and by a grant from the National Science Foundation (BNS 80-23564). Requests for reprints should be sent to Michael R. Leippe, Department of Psychology, St. Norbert College, De Pere, WI 54115 or Thomas M. Ostrom, Department of Psychology, Ohio State University, 404C W. 17th Avenue, Columbus, Ohio 43210.

Table 1

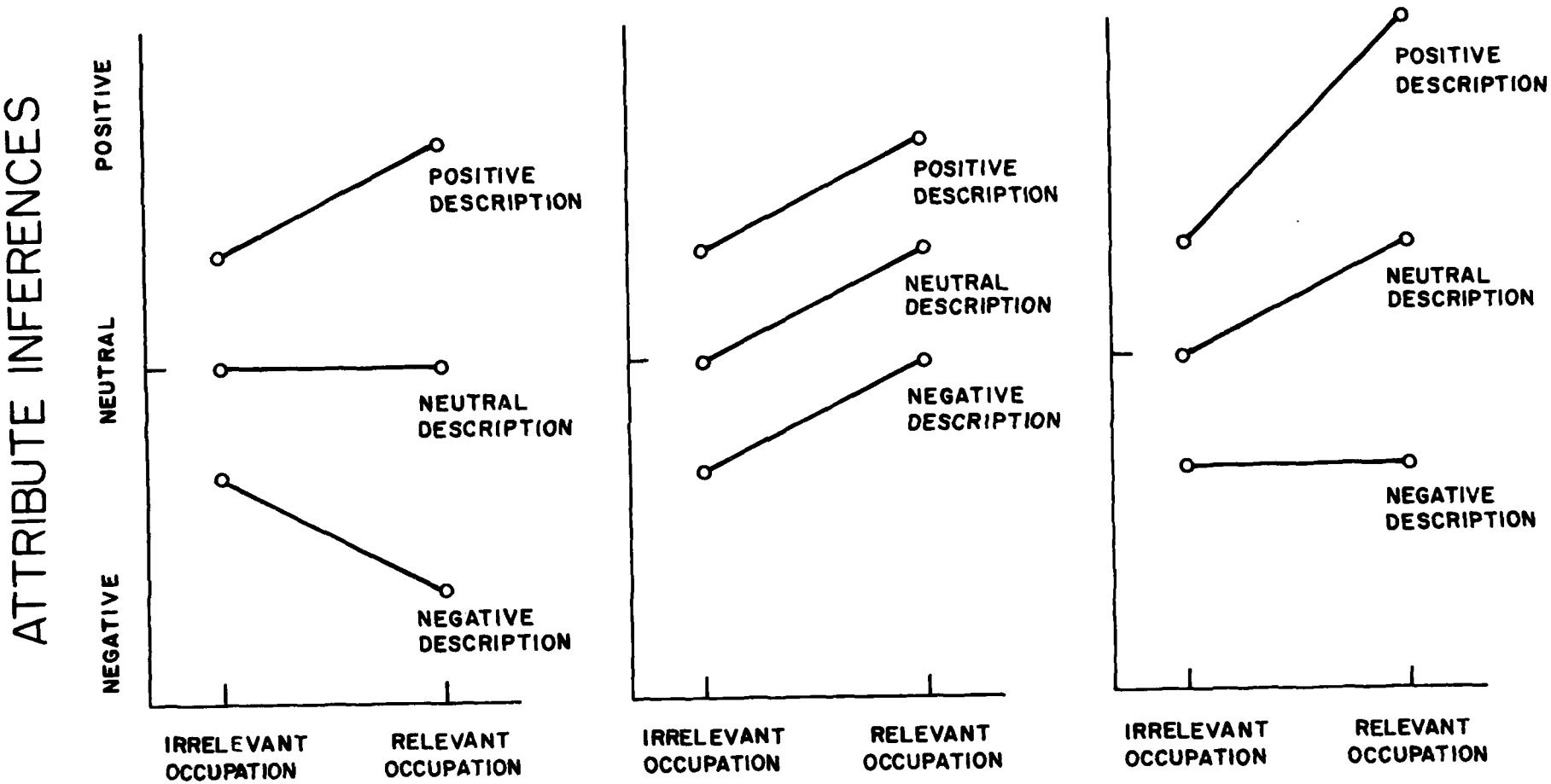
Mean scale values for natural language descriptions presented separately for each attribute dimension

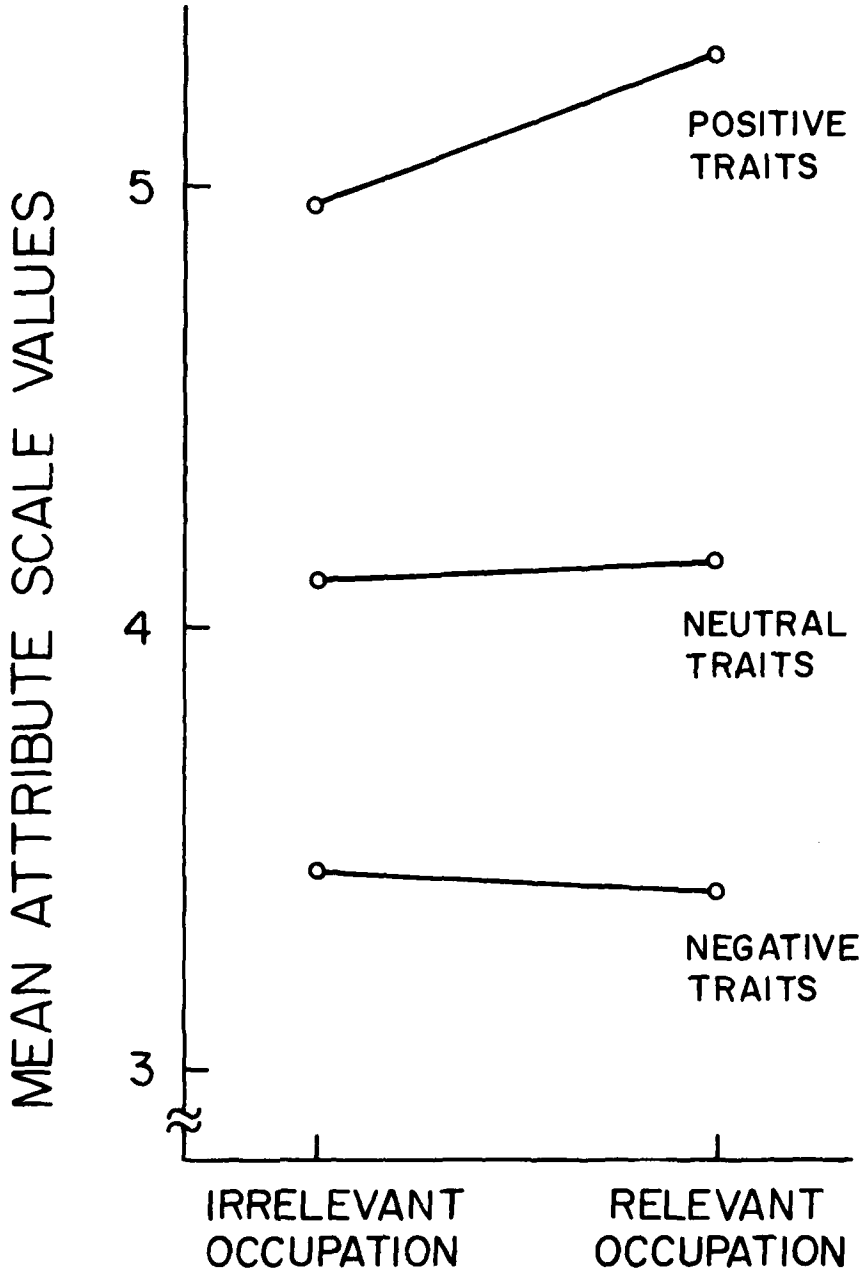
Stimulus	Friendliness		Intelligence	
Person	Irrelevant	Relevant	Irrelevant	Relevant
Valence	Occupation	Occupation	Occupation	Occupation
Positive	4.94	5.15	4.99	5.42
Neutral	4.05	3.97	4.16	4.33
Negative	3.39	3.19	3.50	3.61
$\bar{X}$	4.13	4.10	4.22	4.45

Figure Captions

Figure 1. Theoretical patterns of attribute inferences as a function of person description valence and relevance of the attribute to the initial judgment theme. The patterns vary according to whether inferences are based on information retrieval (Panel a), judgment retrieval (Panel b), or both (Panel c).

Figure 2. Mean scale values of subjects' natural language descriptions on friendliness and intelligence dimensions combined, as a function of attribute relevance and stimulus person valence. Scale values ranged from 1 to 7 with higher numbers indicating more positive judgments.


ATTRIBUTE INFERENCES
POSITIVE
NEUTRAL
NEGATIVE
POSITIVE DESCRIPTION
NEUTRAL DESCRIPTION
NEGATIVE DESCRIPTION
IRRELEVANT OCCUPATION
RELEVANT OCCUPATION
a. INFORMATION RETRIEVAL MODEL
b. JUDGMENT RETRIEVAL MODEL
c. MIXED MODEL


MEAN ATTRIBUTE SCALE VALUES
5
4
3
POSITIVE TRAITS
NEUTRAL TRAITS
NEGATIVE TRAITS
IRRELEVANT OCCUPATION
RELEVANT OCCUPATION

LIST 1
MANDATORY

Defense Technical Information Center (12 copies)
ATTN: DTIC DDA-2
Selection and Preliminary Cataloging Section
Cameron Station
Alexandria, VA 22314

Library of Congress
Science and Technology Division
Washington, DC 20540

Office of Naval Research (3 copies)
Code 4420E
800 N. Quincy Street
Arlington, VA 22217

Naval Research Laboratory (6 copies)
Code 2627
Washington, DC 20375

Office of Naval Research
Director, Technology Programs
Code 200
800 N. Quincy Street
Arlington, VA 22217

Office of Naval Research
Code 440
800 N. Quincy Street
Arlington, VA 22217

Office of Naval Research
Code 442PT
800 N. Quincy Street
Arlington, VA 22217

Office of Naval Research
Code 442EP
800 N. Quincy Street
Arlington, VA 22217

LIST 2
ONR FIELD

ONR Western Regional Office
1030 E. Green Street
Pasadena, CA 91106

Psychologist
ONR Western Regional Office
1030 E. Green Street
Pasaden, CA 91106

ONR Regional Office
536 S. Clark Street
Chicago, IL 60605

Psychologist
ONR Regional Office
536 S. Clark Street
Chicago, IL 60605

Psychologist
ONR Eastern Regional Office
495 Summer Street
Boston, MA 02210

ONR Eastern/Central Regional Office
495 Summer Street
Boston, MA 02210

LIST 4
NAVMAT & NPRDC

NAVMAT

Program Administrator for Manpower,
Personnel, and Training
MAT-0722 (A. Rubenstein)
800 N. Quincy Street
Arlington, VA 22217

Naval Material Command
Management Training Center
NAVMAT 09M32
Jefferson Plaza, Bldg #2, Rm 150
1421 Jefferson Davis Highway
Arlington, VA 20360

Naval Material Command
MAT-00K & MAT-00KB (1 copy each)
(J. W. Tweeddale)
OASN(SNL)
Crystal Plaza #5
Room 236
Washington, DC 20360

Naval Material Command
MAT-03
(J. E. Colvard)
Crystal Plaza #5
Room 236
Washington, DC 20360

NPRDC

Commanding Officer (3 copies)
Naval Personnel R&D Center
San Diego, CA 92152

Naval Personnel R&D Center
Dr. Robert Penn (1 copy)
Dr. Ed Aiken (1 copy)
San Diego, CA 92152

Navy Personnel R&D Center
Washington Liaison Office
Building 200, 2N
Washington Navy Yard
Washington, DC 20374

P4-5/A9
Sequential by State/City

452:KD:716:enj
78u452-883

LIST 5
BUMED

Commanding Officer
Naval Health Research Center
San Diego, CA 92152

CDR William S. Maynard
Psychology Department
Naval Regional Medical Center
San Diego, CA 92134

Naval Submarine Medical
Research Laboratory
Naval Submarine Base
New London, Box 900
Groton, CT 06349

Director, Medical Service Corps
Bureau of Medicine and Surgery
Code 23
Department of the Navy
Washington, DC 20372

Naval Aerospace Medical
Research Lab
Naval Air Station
Pensacola, FL 32508

Program Manager for Human
Performance (code 44)
Naval Medical R&D Command
National Naval Medical Center
Bethesda, MD 20014

Navy Medical R&D Command
ATTN: Code 44
National Naval Medical Center
Bethesda, MD 20014

LIST 6
NAVAL ACADEMY AND NAVAL POSTGRADUATE SCHOOL

Naval Postgraduate School - (code 012)
ATTN: Dr. Richard S. Elster
Department of Administrative Sciences
Monterey, CA 93940

Naval Postgraduate School
ATTN: Professor John Senger
Operations Research and
Administrative Science
Monterey, CA 93940

Superintendent
Naval Postgraduate School
Code 1424
Monterey, CA 93940

Naval Postgraduate School
ATTN: Dr. James Arima
Code 54-Aa
Monterey, CA 93940

Naval Postgraduate School
ATTN: Dr. Richard A. McGonigal
Code 54
Monterey, CA 93940

U.S. Naval Academy
ATTN: CDR J. M. McGrath
Department of Leadership and Law
Annapolis, MD 21402

Professor Carson K. Eoyang
Naval Postgraduate School, Code 54EG
Department of Administration Sciences
Monterey, CA 93940

Superintendent
ATTN: Director of Research
Naval Academy, U.S.
Annapolis, MD 21402

P4-5/A16
Sequential by State/City

452:KD:716:lab
780452-883

LIST 8
NAVY MISCELLANEOUS

Naval Military Personnel Command (2 copies)
HRM Department (NMPC-6)
Washington, DC 20350

Naval Training Analysis
and Evaluation Group
Orlando, FL 32813

Commanding Officer
ATTN: TIC, Bldg. 2068
Naval Training Equipment Center
Orlando, FL 32813

Chief of Naval Education
and Training (N-5)
Director, Research Development,
Test and Evaluation
Naval Air Station
Pensacola, FL 32508

Chief of Naval Technical Training
ATTN: Dr. Norman Kerr, Code 017
NAS Memphis (75)
Millington, TN 38054

Navy Recruiting Command
Head, Research and Analysis Branch
Code 434, Room 8001
801 North Randolph Street
Arlington, VA 22203

Commanding Officer
USS Carl Vinson (CVN-70)
Newport News Shipbuilding &
Drydock Company
Newport News, VA 23607

Naval Weapons Center
Code 094
China Lake, CA 93555 (C. Erickson)

Jesse Orlansky
Institute for Defense Analyses
1801 North Beauregard Street
Alexandria, VA 22311

LIST 9
USMC

Headquarters, U.S. Marine Corps
Code MPI-20
Washington, DC 20380

Headquarters, U.S. Marine Corps
ATTN: Dr. A. L. Slafkosky,
Code RD-1
Washington, DC 20380

Education Advisor
Education Center (E031)
MCDEC
Quantico, VA 22134

Commanding Officer
Education Center (E031)
MCDEC
Quantico, VA 22134

Commanding Officer
U.S. Marine Corps
Command and Staff College
Quantico, VA 22134

LIST 11
OTHER FEDERAL GOVERNMENT

Dr. Douglas Hunter
Defense Intelligence School
Washington, DC 20374

Dr. Brian Usilaner
GAO
Washington, DC 20548

National Institute of Education
ATTN: Dr. Fritz Mulhauser
EOLC/SMO
1200 19th Street, N.W.
Washington, DC 20208

National Institute of Mental Health
Division of Extramural Research Programs
5600 Fishers Lane
Rockville, MD 20852

National Institute of Mental Health
Minority Group Mental Health Programs
Room 7 - 102
5600 Fishers Lane
Rockville, MD 20852

Office of Personnel Management
Office of Planning and Evaluation
Research Management Division
1900 E Street, N.W.
Washington, DC 20415

Office of Personnel Management
ATTN: Ms. Carolyn Burstein
1900 E Street, NW.
Washington, DC 20415

Office of Personnel Management
ATTN: Mr. Jeff Kane
Personnel R&D Center
1900 E Street, N.W.
Washington, DC 20415

Chief, Psychological Research Branch
ATTN: Mr. Richard Lanterman
U.S. Coast Guard (G-P-1/2/TP42)
Washington, DC 20593

LIST 11 CONT'D

OTHER FEDERAL GOVERNMENT

Social and Developmental Psychology
Program
National Science Foundation
Washington, DC 20550

P4-5/A25
Sequential by State/City

452:KD:716:enj
78u452-883

LIST 12
ARMY

Headquarters, FORSCOM
ATTN: AFPR-HR
Ft. McPherson, GA 30330

Army Research Institute
Field Unit - Leavenworth
P.O. Box 3122
Fort Leavenworth, KS 66027

Technical Director
Army Research Institute
5001 Eisenhower Avenue
Alexandria, VA 22333

Director
Systems Research Laboratory
5001 Eisenhower Avenue
Alexandria, VA 22333

Director
Army Research Institute
Training Research Laboratory
5001 Eisenhower Avenue
Alexandria, VA 22333

Dr. T. O. Jacobs
Code PERI-IM
Army Research Institute
5001 Eisenhower Avenue
Alexandria, VA 22333

COL Howard Prince
Head, Department of Behavior
Science and Leadership
U.S. Military Academy, New York 10996

LIST 13
AIR FORCE

Air University Library
LSE 76-443
Maxwell AFB, AL 36112

COL John W. Williams, Jr.
Head, Department of Behavioral
Science and Leadership
U.S. Air Force Academy, CO 80840

MAJ Robert Gregory
USAFA/DFBL
U.S. Air Force Academy, CO 80840

AFOSR/NL (Dr. Fregly)
Building 410
Bolling AFB
Washington, DC 20332

Department of the Air Force
MAJ BOSSART
HQUSAF/MPXHL
Pentagon
Washington, DC 20330

Technical Director
AFHRL/MO(T)
Brooks AFB
San Antonio, TX 78235

AFMPC/MPCYPR
Randolph AFB, TX 78150

LIST 15
CURRENT CONTRACTORS

Dr. Richard D. Arvey
University of Houston
Department of Psychology
Houston, TX 77004

Bruce J. Bueno De Mesquita
University of Rochester
Dept of Political Science
Rochester, NY 14627

Dr. Stuart W. Cook
Institute of Behavioral Science #6
University of Colorado
Box 482
Boulder, CO 80309

Dr. L. L. Cummings
Kellogg Graduate School of Management
Northwestern University
Nathaniel Leverone Hall
Evanston, IL 60201

Dr. Henry Emurian
The Johns Hopkins University
School of Medicine
Department of Psychiatry and
Behavioral Science
Baltimore, MD 21205

Dr. John P. French, Jr.
University of Michigan
Institute for Social Research
P.O. Box 1248
Ann Arbor, MI 48106

Dr. Paul S. Goodman
Graduate School of Industrial
Administration
Carnegie-Mellon University
Pittsburgh, PA 15213

LIST 15 (Continued)

Dr. J. Richard Hackman
School of Organization
and Management
Box 1A, Yale University
New Haven, CT 06520

Dr. Lawrence R. James
School of Psychology
Georgia Institute of
Technology
Atlanta, GA 30332

Allan P. Jones
University of Houston
4800 Calhoun
Houston, TX 77004

Dr. Frank J. Landy
The Pennsylvania State University
Department of Psychology
417 Bruce V. Moore Building
University Park, PA 16802

Dr. Bibb Latane
The Ohio State University
Department of Psychology
404 B West 17th Street
Columbus, OH 43210

Dr. Edward E. Lawler
University of Southern California
Graduate School of Business
Administration
Los Angeles, CA 90007

Dr. Edwin A. Locke
College of Business and Management
University of Maryland
College Park, MD 20742

Dr. Fred Luthans
Regents Professor of Management
University of Nebraska - Lincoln
Lincoln, NE 68588

LIST 15 (Continued)

Dr. R. R. Mackie
Human Factors Research
A Division of Canyon Research
5775 Dawson Street
Goleta, CA 93017

H. Ned Seelye
International Resource Developmer
Inc.
P.O. Box 721
La Grange, IL 60525

Dr. William H. Mobley
College of Business Administration
Texas A&M University
College Station, TX 77843

Dr. Thomas M. Ostrom
The Ohio State University
Department of Psychology
116E Stadium
404C West 17th Avenue
Columbus, OH 43210

Dr. William G. Ouchi
University of California, Los
Angeles
Graduate School of Management
Los Angeles, CA 90024

Dr. Irwin G. Sarason
University of Washington
Department of Psychology, NI-25
Seattle, WA 98195

Dr. Benjamin Schneider
Department of Psychology
Michigan State University
East Lansing, MI 48824

Dr. Edgar H. Schein
Massachusetts Institute of
Technology
Sloan School of Management
Cambridge, MA 02139

Dr. H. Wallace Sinaiko
Program Director, Manpower Research
and Advisory Services
Smithsonian Institution
801 N. Pitt Street, Suite 120
Alexandria, VA 22314

Dr. Richard M. Steers
Graduate School of Management
University of Oregon
Eugene, OR 97403

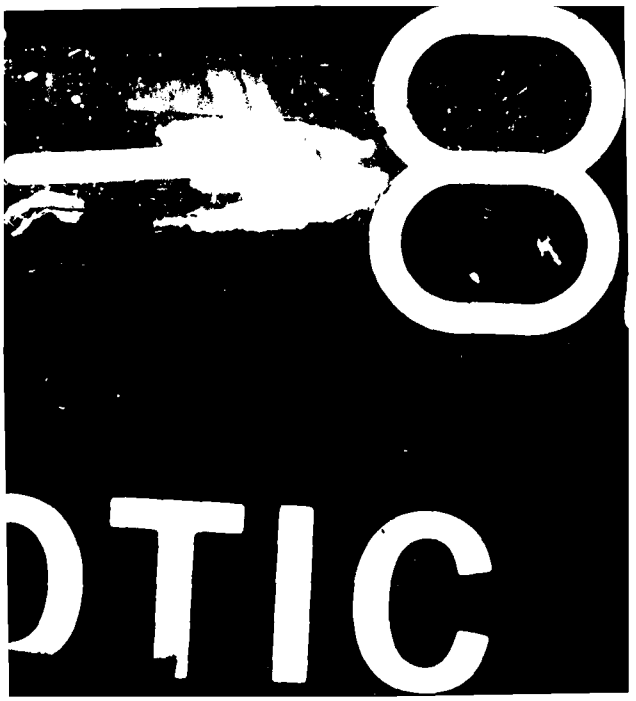
Dr. Siegfried Streufert
The Pennsylvania State University
Department of Behavioral Science
Milton S. Hershey Medical Center
Hershey, PA 17033

Dr. James R. Terborg
University of Oregon
West Campus
Department of Management
Eugene, OR 97403

Dr. Harry C. Triandis
Department of Psychology
University of Illinois
Champaign, IL 61820

Dr. Howard M. Weiss
Purdue University
Department of Psychological
Sciences
West Lafayette, IN 47907

Dr. Philip G. Zimbardo
Stanford University
Department of Psychology
Stanford, CA 94305


8
DTIC